Decrease in the Prevalence of Environmental Tobacco Smoke Exposure in the Home During the 1990s in Families With Children

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Although the primary health risks associated with cigarette smoking accrue to the smoker, environmental tobacco smoke (ETS) is also a significant health concern. The Environmental Protection Agency has classified ETS as a group A carcinogen. ETS has been shown to cause cancer and heart disease in nonsmokers. Children of smokers are particularly susceptible because many are exposed to ETS for extended periods in the home and because children have little recourse in removing themselves from such environments.

Much research on childhood ETS exposure has demonstrated important links between ETS and asthma, respiratory infections, sudden infant death syndrome, the common cold, pneumonia, bronchitis, and other health outcomes, especially among children younger than 5 years. This age effect most likely results from the fact that young children spend the most time at home and are likely to be more vulnerable than older children to specific environmental health threats.^{3–5}

Many studies have examined the validity of different measures of ETS exposure in the home, particularly among asthmatic children, and have concluded that survey questions give an accurate measure of ETS. Some studies also have compared parental self-report and measured cotinine levels, finding that self-report accurately captures ETS exposure. However, to date, only a handful of studies have measured the national and state-specific prevalence of home ETS exposures, with much of the available data collected during the late 1980s and early 1990s. Estimates exist as far back as 1970, 48-12 but only 1 study provides comparable data from the late 1990s. 13

Existing studies document significant declines in home ETS exposures over the past 3 decades. Data from the 1970 National Health Interview Survey (NHIS) indicate that 62% of children had at least 1 parent in the household who was a smoker. Using data from the 1991 NHIS. Mannino et al. found that 37%

Objectives. This study explored correlates with and changes in the prevalence of environmental tobacco smoke (ETS) exposure of children in the home.

Methods. We used multiple logistic regression to explore ETS exposures as reported in the 1992 and 2000 National Health Interview Survey.

Results. ETS exposure in homes with children declined from 35.6% to 25.1% (P<.001) between 1992 and 2000, whereas smoking prevalence declined 26.5% to 23.3%. Home ETS exposures were more prevalent among non-Hispanic Whites than among African Americans (adjusted odds ratio [AOR]=0.702; 95% confidence interval [CI]=0.614, 0.802), Asian Americans (AOR=0.534; 95% CI=0.378, 0.754), and Hispanics (AOR=0.388; 95% CI=0.294, 0.389). Exposures declined across all groups, with greater gains in higher education and income groups.

Conclusions. Home ETS exposure declined sharply between 1992 and 2000, more than would be predicted by the decline in adult smoking prevalence. (Am J Public Health. 2004;94:314–320)

of children were exposed to ETS in the home. Some—but not all—of this decline in home ETS exposure can be attributed to an overall decline in smoking prevalence. Between 1970 and 1990, adult smoking prevalence fell from 37.4% to 25.5%. ¹⁴

Although some studies indicate continuing decline in the prevalence of home ETS exposure during the 1990s, 9-11 estimates of the size of this reduction vary greatly. The estimated prevalence of home ETS was approximately 43% between 1988 and 1991, 8.9 with 21.9% of children and adolescents younger than 18 years exposed in 1996. 11

In 2000, children's home ETS exposure was explored in 20 states, with the percentage of adults reporting smoking in the home ranging from 39.2% in West Virginia to 21% in Colorado. Although this study did not estimate the national prevalence of ETS in homes with children, it did estimate that between 1988–1991 and in 1999, home ETS exposure among children aged 3 years or younger decreased by 75% of the base rate.

The current study builds on this research by comparing the national and regional prevalence of ETS exposure in homes with children younger than 18 years in 1992 and 2000. In addition to determining whether and how much home ETS exposure declined during the

1990s, we examined the relation between household characteristics and declines in home ETS exposure. Finally, we explored changing attitudes toward ETS among smokers as a potential protective factor in reducing home ETS exposure. This last concern is especially important, given the modest rate of decline in adult smoking prevalence over the 1990s. 14

METHODS

The NHIS is a large, annual, nationally representative sample of the noninstitutionalized US population. An annual supplemental questionnaire exploring specific topics is administered to a subsample of respondents. In 1992 and 2000, the supplements covered tobacco, providing information on the respondents' smoking status, attitudes toward ETS, and home ETS prevalence, measured as the number of days per week someone smoked in the home. This information was combined with basic information about the family (including the parents' education levels, race and ethnicity, and region) to create a family-level record. Only households with children aged 18 years or younger were retained for analysis.

Families were dropped from the sample if they were not administered the supplemental questionnaire or if they had missing data regarding home ETS exposures. Combining families from 1992 and 2000 gave a total sample size of 15 601 (4418 families from the 1992 survey and 11 183 from the 2000 survey).

To accommodate the weighted and stratified nature of the NHIS sample, all descriptive statistics and regression results were computed using the SVY set of routines in the Stata 7.0 software package.¹⁵

The NHIS also includes detailed income information, subject to top coding for high-income respondents or respondents who did not wish to provide income information. The income threshold for top coding changed between 1992 and 2000, hindering direct comparisons of the highest-income groups.

Cigarette Prices

A regional price variable was added to the family record to determine whether price increases affected home ETS exposure. The regional price variable is a price index created by multiplying the state price of cigarettes by the state's fraction of the region's tax-paid sales. All 1992 prices and incomes were inflated to year 2000 dollars using the consumer price index.

Logistic Regression

Multiple logistic regression analysis was used to examine the determinants of home ETS exposures. Year-specific regressions were estimated to examine the determinants in each of the years 1992 and 2000. A pooled analysis also was conducted to examine which variables contributed to the decrease in home ETS exposure. A second logistic regression specification explored changing attitudes about the harmfulness of smoking as the dependent variable. Because some strata in the data had only 1 primary sampling unit, the sample size for the logistic regression was reduced to 14938 (663 observations from 1992 were dropped).

Intensity of Smoking

We were not able to capture the smoking intensity of all smokers in a household because the NHIS survey captures the smoking behavior of respondents only. Smoking intensity therefore could not be determined if the smoker was not the respondent. We did examine the role of smoking intensity in a subset of the data. To explore the relationship between

smoking patterns and home ETS exposure, we limited the sample to respondents for whom, in addition to information about home ETS and smoking status, we were able to obtain information on intensity of smoking, operationalized as the number of cigarettes smoked per day. This sample consisted of 803 observations from 1992 and 2297 observations from 2000. The original regressions were repeated with the addition of 4 dummy variables to capture the number of cigarettes smoked per day. The dummy variables represented smoking less than 5 cigarettes, between 5 and 15 per day, between 15 and 25 per day, and more than 25 cigarettes per day. Nonsmokers were the referent group.

Blinder-Oaxaca Decomposition Algorithm

Changes in home ETS exposures between our 2 survey years could reflect compositional effects within the 2 samples—that is, changes in the distribution of parental education or other characteristics associated with home ETS exposure. Alternatively, changes in home ETS could reflect a true trend effect: changing social attitudes and practices regarding ETS exposures among families with the same observable characteristics in the 2 survey years. We used Blinder—Oaxaca decomposition algorithm to distinguish compositional from trend effects. ¹⁸

In particular, let X_{1992} and X_{2000} be vectors of pertinent family characteristics in the two years. We estimated separate linear probability models of home ETS exposure in each survey year, yielding the vectors of coefficients β_{1992} and β_{2000} . Included in each X-vector is a simple intercept. A change in this coefficient captures a pure trend effect in home ETS exposure among families who had similar observed characteristics.

Taking population means for all variables in both years, we then wrote the difference in mean home ETS exposure as follows:

(1)
$$ETS_{2000} - ETS_{1992} = \sum \beta_{2000} X_{2000} - \sum \beta_{1992} X_{1992} = \sum \beta_{1992} (X_{2000} - X_{1992}) + \sum X_{2000} (\beta_{2000} - \beta_{1992})$$

The left-hand side of Equation 1 is the mean change in home ETS exposure from 1992 to 2000. The first term on the right-hand side reflects the fact that multiple linear regression is an unbiased estimator. We then

regrouped the right-hand side terms to distinguish the impact of a changing population from the impact of changing relationships between population characteristics and ETS.

The summation $\sum \beta_{1992}(X_{2000}-X_{1992})$ accounts for compositional effects, that is, changes in the NHIS sample that are associated with reduced probability of ETS exposure in our year-specific regressions. The summation $\sum X_{2000}(\beta_{2000}-\beta_{1992})$ accounts for changes in the estimated relation between respondent characteristics and home ETS exposures between the 2 survey years. Changing social attitudes and practices are captured by this part of Equation 1.

Attitudes About ETS

The prevalence of home ETS exposure reflects both smoking prevalence among adults and smokers' knowledge and attitudes about the health risks of home ETS exposure. If public awareness of the health hazards of ETS increased between 1992 and 2000, one might expect a sharper decline in home ETS exposure than in smoking prevalence between the 2 years. We operationalized this concern by examining respondents' agreement with the statement "The smoke from other people's cigarettes is harmful to you." An increase in the proportion of respondents agreeing with this statement would measure a change in the public awareness of the health hazards of ETS.

RESULTS

ETS exposure in homes with children declined strongly and significantly (P<.0001) from 36% to 25% between 1992 and 2000. The proportion of NHIS children exposed to ETS (which reflects family size as well as ETS patterns across the sample) experienced a virtually identical reduction, from 35% to 25%.

The sample also was stratified by region, parental education, race/ethnicity, and attitudes toward ETS in 1992 and 2000. As shown in Table 1, the prevalence of home ETS declined significantly in all regions.

When we examined trends by race/ethnicity, the decline was highly significant among Hispanics and non-Hispanic Whites and significant among African Americans. African Americans

TABLE 1—Stratified Prevalence of Smoking and Home Environmental Tobacco Smoke: National Health Interview Survey, 1992 and 2000^a

	1992		2000	
	Sample Proportion	ETS Prevalence	Sample Proportion ^b	ETS Prevalence ^c
Total ETS prevalence		35.6		25.1***
Total smoking prevalence	30.2		24.8	
Region				
Northeast	18.8	31.3	18.8	26.4*
South	32.4	38.5	36.1	27.1***
Midwest	28.1	40.9	25.4	29.5***
West	20.8	25.5	19.8	14.9***
Race/ethnicity				
White	77.0	36.8	69.1***	26.5***
Hispanic	9.0	24.4	14.8	16.1***
African American	10.8	37.2	13.3	30.3*
Native American	0.5	18.6	2.4	33.2
Asian	2.8	11.9	0.5	13.8
Mother's education				
High school dropout	14.5	47.2	14.0***	34.7***
High school	46.2	43.3	34.2	34.8***
Some college	22.5	28.9	29.9	21.9***
College	11.4	15.8	16.0	9.7**
Postgraduate	5.4	9.5	6.0	6.2
Attitudes toward ETS				
Smoking not harmful	4.7	69.1	4.7***	54.0**
Smoking harmful	91.7	31.6	87.2	21.3***
Don't know if smoking is harmful	3.6	52.7	8.1	43.2*

Note. ETS = environmental tobacco smoke.

icans had the highest prevalence of home ETS in 1992 and the second highest in 2000. After African Americans, non-Hispanic Whites had the next highest prevalence in both years. However, a much larger decline was observed among Whites than in any other racial/ethnic group. Although it appears that the prevalence of home ETS increased greatly among Native Americans between 1992 and 2000, this finding was based on a small sample size (n=68) and was not significant.

Figure 1 shows the negative association between maternal education and the prevalence of home ETS as the mother's education increased. This social pattern persisted from 1992 to 2000. Statistically significant declines in ETS exposure were seen in all educational groups except for postgraduate education. The same social patterning of home ETS was observed when the data were stratified by the father's education (not shown in Figure 1.

Figure 1 also shows the persistence of social patterning of smoking in both years as operationalized by the mother's education. We found that in households where the mother did not complete high school, ETS exposure fell from 49% in 1992 to 35% in 2000. In households where the mother completed graduate education, home ETS exposure declined from 11.2% in 1992 to 6.7% in 2000. When we controlled for income and

education, Hispanic and African American children were exposed to lower levels of home ETS than non-Hispanic White children (not shown in Figure 1).

Using logistic regression (Table 2) to control for potential confounding factors did not alter the observed negative relationship between home ETS exposure and family income (not shown) and maternal or paternal education in both 1992 and 2000. When we set the smoking status of the family respondent as the dependent variable, logistic regression using the same independent variables showed similar relations between income (not shown) and education and respondent smoking status in the 2 years. When we controlled for income, education, and region, home ETS exposures were more prevalent among non-Hispanic Whites and Native Americans than among African Americans, Asian Americans, and Hispanics. Because of differences in the coding of income between 1992 and 2000, we have presented the results with income excluded from the analysis. Sensitivity analysis indicated that the removal of income variables and the use of different approaches to coding income did not change any of our main results. Excluding income does appear to sharpen differences by parental education in home ETS exposure.

Smoking Intensity

The variables measuring the number of cigarettes per day (coefficients not shown) were all highly significant (P<.001), suggesting that smoking intensity is an important predictor of home ETS.

The addition of these variables also affected the findings that African Americans and Hispanics were less likely to smoke in the home. In these regressions, the coefficient for African Americans became insignificant and increased from an adjusted odds ratio of 0.55 (95% CI=0.46, 0.68) to 1.04 (95% CI=0.81, 1.33). The coefficient for Hispanics also became less significant, declining from the 0.001 level to the 0.01 level and increasing in adjusted odds ratio from 0.295 (95% CI=0.23, 0.37) to 0.65 (95% CI=0.49, 0.87). These findings indicate the importance of high smoking intensity among non-Hispanic White smokers relative to other large race/ethnic groups.

^aThe proportions are based on a sample size of 4418 families from the 1992 survey and 11183 from the 2000 survey.

^bThe significance level of the sample proportion is determined using a χ^2 test. The test was performed on both years and all subgroups. The exception to this is total smoking and ETS prevalence, which was tested using a t test.

Significance was determined using a χ^2 test and measures changes of ETS and year within a specific subgroup of the sample.

^{*}Significant at the .05 level.

^{**}Significant at the .01 level.

^{***}Significant at the .001 level.

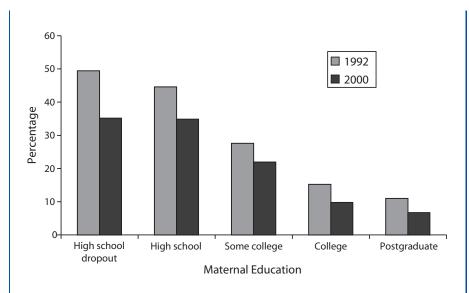


FIGURE 1-Home environmental tobacco smoke exposure by mother's education

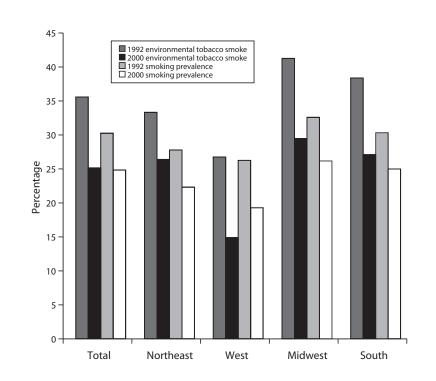


FIGURE 2-National and regional comparisons of smoking prevalence and home environmental tobacco smoke exposure in 1992 and 2000.

Smoking Prevalence and Home ETS Exposure

Home ETS exposure might have declined between 1992 and 2000 because of a gen-

eral decline in smoking over the same period. In fact, however, national smoking prevalence declined only from 26.5% to 23.3% between the 2 survey years. Among adult NHIS re-

spondents who were parents of minor children, smoking prevalence showed a slightly larger decline, from 30% to 25%. (Additional documentation of trends in adult smoking prevalence trends and home ETS is available from the authors).

Attitudes About ETS

In both survey years, when we controlled for respondent smoking status, education, income, and race/ethnicity, respondents who reported that ETS is harmful were less likely than other respondents to report smoking in the home. However, the proportion of families in which the respondent agreed with the statement "The smoke from other people's cigarettes is harmful to you" slightly decreased by 3% from 89% to 86% (P < .001). When attitudes about ETS is the dependent variable in the regression, beliefs about the harmfulness of ETS were also socially patterned. With increasing socioeconomic status, individuals were more likely to reply that ETS is harmful.

Price Effects

Regional cigarette price changes were not significantly related to changes in home ETS exposure from 1992 to 2000. Price effects would most directly reduce home ETS by reducing the prevalence and volume of tobacco use.

Decomposition Algorithm

The decomposition algorithm was used to compare composition and trend effects in explaining declines in home ETS exposures. Analysis implies that 8.0% age points out of the observed 10.5% age-point decline in home ETS reflected trend effects. The remaining 2.5% age points could be attributed to changes in population characteristics. Most of the observed composition effect was attributable to the increase in the Hispanic population, which is estimated to be associated with a 2.2% age-point decline in home ETS exposure.

DISCUSSION

This study has several limitations. Decreasing acceptance of ETS may have led NHIS respondents to underreport the actual

TABLE 2—Correlates of Smoking in the Home: Logistic Regression Adjusted Odds Ratios and 95% Confidence Intervals: National Health Interview Survey, 1992 and 2000

	Odds Ratios (95% CI)				
	1992	2000	Combined		
Year 2000			0.47* (0.28, 0.8)		
Price			1 (1, 1.01)		
Region					
Northeast	Ref	Ref	Ref		
South	1.1 (0.88, 1.37)	0.85* (0.74, 0.98)	1.04 (0.75, 1.44)		
Midwest	1.26 (0.98, 1.63)	1.07 (0.92, 1.25)	1.25 (0.94, 1.65)		
West	0.72* (0.55, 0.93)	0.48*** (0.4, 0.58)	0.53*** (0.46, 0.62)		
Race/ethnicity					
White	Ref	Ref	Ref		
Hispanic	0.4*** (0.3, 0.53)	0.36*** (0.3, 0.42)	0.36*** (0.32, 0.42)		
African American	0.7* (0.53, 0.93)	0.75*** (0.64, 0.87)	0.74*** (0.65, 0.84)		
Native American	1.01 (0.47, 2.13)	1.09 (0.66, 1.8)	1.12 (0.74, 1.69)		
Asian	0.38** (0.2, 0.74)	0.64* (0.43, 0.95)	0.57*** (0.41, 0.8)		
Mother's education					
High school dropout	1.3* (1.02, 1.65)	1.17 (1, 1.37)	1.18* (1.03, 1.35)		
High school graduate	Ref	Ref	Ref		
Some college	0.66*** (0.53, 0.81)	0.64*** (0.56, 0.72)	0.64*** (0.57, 0.71)		
College	0.42*** (0.3, 0.6)	0.35*** (0.28, 0.43)	0.36*** (0.3, 0.43)		
Postgraduate	0.31*** (0.19, 0.49)	0.27*** (0.19, 0.38)	0.28*** (0.21, 0.37)		
Attitudes toward ETS					
ETS not harmful	Ref	Ref	Ref		
ETS harmful	0.22*** (0.15, 0.31)	0.28*** (0.23, 0.34)	0.27*** (0.23, 0.32)		
Don't know if ETS is harmful	0.61* (0.39, 0.95)	0.67*** (0.53, 0.85)	0.66*** (0.54, 0.81)		

Note. CI = confidence interval.

prevalence of home ETS exposure. Although the validity of the survey data in measuring home ETS has been explored, we know of no systematic study that explores how different population groups may have changed their reporting practices. Underreporting might have been greatest among higher socioeconomic groups in which a lower prevalence of smoking and greater education make smoking and ETS less socially acceptable.

Although the home is a major source of children's exposure to ETS, we lacked data concerning ETS exposure in other venues. Including out-of-home sources of ETS exposure would have allowed a more complete picture of children's total ETS exposure. In addition, a more accurate measure of home exposure would estimate the volume of home ETS ex-

posure (including a measure of the smoking status of all adults in the household, cigarettes smoked per day in the home, and square footage of the household). Our analysis also did not distinguish between maternal and other adults' smoking. There is some evidence that maternal smoking is most important for children's ETS exposures. ¹⁹

A particular limitation is that the NHIS scrutinized smoking status data for survey respondents but did not capture the smoking status of other adults in the respondent's household. Because some households with nonsmoking respondents include smokers, the percentage of households with home ETS could therefore exceed smoking prevalence by survey respondents. In addition, we could not measure smoking in the home by visitors, which would likely increase our estimated

prevalence if respondents did not report visitor smoking. Using data from the 1994 NHIS, Schuster et al.²⁰ showed that including smoking in the home by visitors increased the prevalence of smoking in the home by 4 percentage points.

Differences in NHIS methodology also may affect our results. For example, as mentioned previously, the 1992 and 2000 surveys differed in their coding of income. In the case of the income variable, we tested the sensitivity of our results to methodological differences, but there is a possibility that other methodological differences that we were unaware of may have affected our results.

Finally, an ideal measure of attitudes would take into account respondents' general knowledge that ETS is harmful, their specific knowledge of the degree of harmfulness of ETS, and their attitudes toward ETS given such knowledge. Our regression analysis indicated that the knowledge that ETS is harmful was associated with reduced home ETS exposure. However, nearly all respondents in each survey year indicated that home ETS exposure might be harmful. Respondents in 2000 may have been more specifically informed than their counterparts in 1992. After control for health knowledge, respondents in 2000 also may have been more likely to change their behavior on the basis of such information. We were not able to explore the degree of people's knowledge about the harms of ETS or the intensity of people's attitudes toward ETS given their knowledge.

Notwithstanding these limitations, our analysis shows a marked decline in home ETS exposures. Although home ETS exposure is socially patterned, we were encouraged to find decreases in home exposure across all large racial/ethnic, educational, and income groups. Our findings are consistent with other studies' findings that children's exposures to home ETS vary by income and education, 4.21 race/ethnicity, 10,20,22 and region. 10,20

Despite differences in home ETS exposure across social groups, the data indicate broad declines across the study population. The question of what produced this decline remains unanswered. The small observed declines in smoking prevalence, both in the general population and in adults with minor children, do not account for the magnitude of

^{*}Significant at the .05 level using logistic regression analyses.

^{**}Significant at the .01 level.

^{***}Significant at the .001 level.

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the decline in home ETS exposure. Other than an increase in the Hispanic population in the United States over the 1990s, no other demographic changes notably altered the prevalence of home exposures.

Another important finding is the relationship between the intensity of smoking and home ETS exposure. We find that smoking intensity is strongly correlated with home ETS exposures in households that include smokers. The relationship between smoking intensity and home ETS explained some of the difference in home ETS exposure between Whites and Hispanics and explained much of the difference between African Americans and non-Hispanic Whites. Such findings are consistent with those of Hassmiller et al.,21 who found that African Americans and Hispanics are more likely than non-Hispanic Whites to smoke on a nondaily basis.

A large majority of respondents in both survey years stated that ETS is harmful to health. Despite a small, but statistically significant, decline in the proportion of the sample between 1992 and 2000 agreeing that ETS is harmful, our decomposition analysis indicated that changes in these variables had virtually no impact on the prevalence of home ETS exposures.

We did not identify changes in reported attitudes about ETS that played a role in explaining declining home ETS exposures over time. One possible reason is that the NHIS survey items did not capture pertinent changes in social norms. The 1990s was a period of significant increases in indoor air laws. 23,24 Initiatives such as the passage of clean indoor air laws may have signified a change in society's acceptance of ETS exposure; this shift in social norms also may have translated into changes in behavior.

Analysis of the California Tobacco Survey supports this hypothesis.²² Beginning in 1992, the California Tobacco Survey began collecting information about smoking restrictions in the home. These data indicate that the proportion of all households that had smoke-free policies nearly doubled from 1992 to 1999. Smokers reporting no-smoking policies in the home nearly tripled, rising from 15.8% in 1992 to 48.6% in 1999, whereas the change in homes of nonsmokers went from 37.6% to 73.7%. In 1992, 38% of households with

children were smoke-free, whereas in 1999 that proportion rose to 82.2%.²² These estimates may be misleading, however. In 1992, many nonsmokers may have had smoke-free homes but may not have had a formal nosmoking policy.

By 1999, attention to ETS may have led these homes to adopt a formal no-smoking policy. Nevertheless, the California Tobacco Study is important because it shows not only the increasing awareness and acceptance of the dangers of ETS but also the active translation of such knowledge into smoking policies in the home among both smokers and nonsmokers. Even if many households did not have a policy regarding smoking in the home because the issue never arose, the sudden rise in explicit no-smoking policies in the home shows an active response toward the harms of ETS. The fact that smokers also enacted nosmoking policies supports the validity of our findings that home ETS exposure fell more rapidly than the prevalence of smoking.

The decline in home ETS exposure may indicate that the campaign to reduce ETS in work sites and public places also influences home ETS exposure. An important, but unexplored, question in this analysis (noted by an anonymous referee) concerns the relation between state spending on tobacco control and the decline in home ETS exposure. We were unable to examine this question in this study because we lacked access to state-specific data, but we hope to explore it in future research.

ETS exposure in homes with children declined significantly during the 1990s-a phenomenon that occurred across socioeconomic groups. This should translate into improvements in the health of families, especially the health of children. The cause of the decline, however, remains unclear. Adult smoking prevalence fell only modestly during the 1990s, and the percentage of people agreeing that ETS is harmful to nonsmokers did not increase. Future research should examine ways that tobacco control efforts have influenced ETS exposure in the home and how such efforts might be applied to future tobacco control interventions. Knowledge gleaned from such analysis also might inform other efforts that address other child health risks that arise in family settings.²⁵

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Contributors

S. Soliman performed most of the data analysis reported in the article, produced most of the initial draft of the article in its current form, and was involved in revising the article. K.E. Warner and H.A. Pollack defined and supervised the data analysis, drafted sections of the article, and assisted in revisions.

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Human Participant Protection

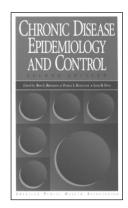
No protocol approval was needed for this study, because it used data published by the National Health Interview Survey.

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